

Acid Base Review :

pH measures free H^+ and is measured on a blood-gas machine

↑ pH

↓ PH

* When determining if it is metabolic

or respiratory, look @ pH then see what changes you would expect.

- Alkalemia

- Academia

↙ metabolic

↓ metabolic

- Increased bicarbonate

- Decreased bicarbonate

- Decreased CO_2 ^{respiratory}

- Increased CO_2 ↓ respiratory

-Both

- Both

Increases when system gains an unmeasured ion

Anion Gap: $AG = (Na + K) - (HCO_3 + Cl)$

↓ Decreases if Albumin or phosphate decreases

Respiratory alkalosis causes

Respiratory acidosis causes

- decreased PCO_2

- Increased PCO_2

- Hyperventilation

- Hypoventilation

- Нурсарна

- Hypercapnia

- Hyposcarbia

• Hyperscorbia

Lung disease

Brain disease

Brain disease

Cervical Spinal Cord disease

Peripheral nerve of neuromuscular junction

Respiratory muscle disease / fatigue

Metabolic Alkalosis Causes

Metabolic Acidosis Causes

$\uparrow \text{HCO}_3^- \rightarrow \uparrow \text{pH}$

$\downarrow \text{pH} \rightarrow \downarrow \text{HCO}_3^-$

- loss of acid $\begin{cases} \text{Renal} \\ \text{Gastric} \end{cases}$

- Gain of acid $\rightarrow$ high AG

- Gain of bicarbonate - iatrogenic

- Loss of bicarbonate $\rightarrow$ Normal AG

tubular necrosis

renal or intestinal loss

↓
diaschisis

↖ HCO_3^- and Cl^- are exchanged
so there is no change
to the Ag

High AG Metabolic Acidosis (Gain of Acid) Top 4 Clinical Causes

"DUEL"

D: Diabetic ketoacidosis

U: Uremic Acid (AKI)

E: Ethylene glycol toxicity

L: Lactic acidosis